NRCS
Natural
Resources
Conservation
Service

Utah Water Supply Outlook Report

April, 2005

Spirit Lake Lodge, north slope of the Uinta Mountains, new record high snowpack. Photo by Tim Bardsley, NRCS, USDA - March 26, 2005.

Water Supply Outlook Reports
and
Federal - State - Private
Cooperative Snow Surveys

For more water supply and resource management information, contact:

Vane O. Campbell, Area Conservationist, 340 N. 600 E., Richfield, UT 84701 - Phone: (435) 896-6441
Todd C. Nielson, Area Conservationist, 302 E. 1860 S., Provo, UT 84606 - Phone: (801) 377-5580
Barry Hamilton, Area Conservationist, 540 W, Price River Dr. Price, UT 84501-2813 - Phone: (435) 637-0041
Snow Survey Staff, 245 N Jimmy Doolittle Rd, SLC Utah, 84041 - Phone: (801)524-5213
Internet Address: http://www.ut.nrcs.usda.gov/snow/

How forecasts are made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snowcourses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

STATE OF UTAH GENERAL OUTLOOK
April 1, 2005

SUMMARY
April first is typically the peak of snow accumulation for Utah. Low elevation snowpack generally starts to melt with the mid and high elevations soon to follow. When an exceptionally large snowpack occurs, such as what we currently have in southern Utah and the Uintah Basin, snow accumulation in the higher elevations could continue for another month or even longer. The snowpack must come to isothermal conditions prior to being able to melt and the physical mass of a large snowpack takes a much longer time to come to this condition. During this time, additional snow accumulation is possible from late season storms which, in turn increases the potential of extremely high streamflow. Yet another factor complicates this scenario. Large snowpacks take longer to melt out during which time large regions of the watershed are getting 1 to 2 inches of melt per day, keeping soils in a saturated condition. The probability of getting high intensity precipitation events on top of snowmelt and saturated soils is reasonably high. This certainly increases the potential for high peak flows as well as agricultural and other kinds of damage. This March kept water watchers on pins and needles with the first three weeks being very dry and very reminiscent of the March of 2004 where snowpacks melted early and a disastrous water year followed. The final days of March were extremely wet and snowpacks across the state benefited. Overall, water supply conditions are improving statewide compared to years past with reservoir storage on the upswing, soil moisture is vastly improved and snowpacks are all above average. Snowpacks range from 102% over the Bear River Watershed to 234% over southwest Utah. None of the basin snowpack averages are now in record territory but many individual sites have shattered all time record maximum snowpack totals. Low elevation snowpacks are much less than we have seen in other large years due mainly to relatively mild temperatures this winter. With large snowpacks in southern Utah and the Uintah basin, comes the potential for very high snowmelt streamflow. For some streams like Coal Creek which has over 262% of average snowpack and has broken the old maximum record snowpack by nearly 15 inches of snow water equivalent, it is likely not if, but merely when the high flows will occur. While many outcomes remain possible in these areas, it is prudent to begin preparation for potentially high snowmelt streamflow this spring. Precipitation for March was near average statewide at 108%. Northern Utah ranged from 92% to 122% and southern Utah had 94% to 119% of average. This brings the seasonal precipitation, (Oct-Mar) to 137%. Estimates of soil moisture range from about 30% to 85% of saturation in the upper 24 inches of soil. Low reservoir storage is becoming less of a concern with total reservoir storage at 48% of capacity, up 3% from last year. All reservoirs statewide should fill except Bear Lake, Utah Lake, Strawberry and Scofield Reservoir. The area of greatest drought concern is the Bear River with current reservoir storage at only 6% of capacity. Areas that could have high streamflows include the Uintah Basin, southeast Utah, Escalante, upper Sevier and the Virgin. Streamflow forecasts range from 57% to 351% of average. Surface Water Supply Indices range from 4% on the Bear River, to 95% on the Virgin.

SNOWPACK
March first snowpacks as measured by the NRCS SNOTEL system range from 102% on the Bear to 234% in southwestern Utah. Most snowpacks in northern Utah are 165% to 235% higher than last year, whereas the Uintah Basin and everything south of Salina have 250% to 440% of the snowpacks of last year. The Midway Valley SNOTEL site currently has 66.3 inches of snow water equivalent and its April 1 average peak is only 27 inches. Of some concern are low elevation snowpacks across the state, which are below average. Overall, snowpacks are much improved from years past.

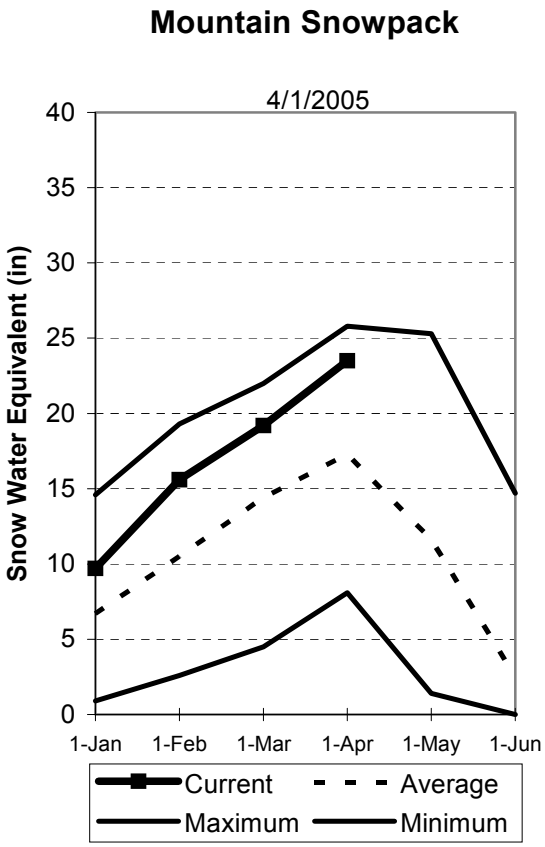
PRECIPITATION
Mountain precipitation during March was 108% of average statewide. Precipitation was fairly consistent ranging from 92% on the Bear to 122% on the Provo. This brings the seasonal accumulation (Oct-Mar) to 137% of average statewide.

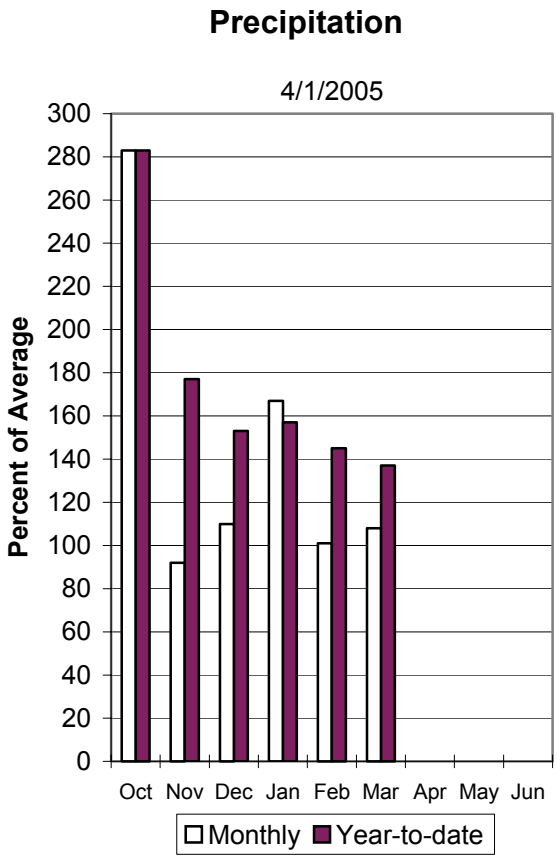
RESERVOIRS

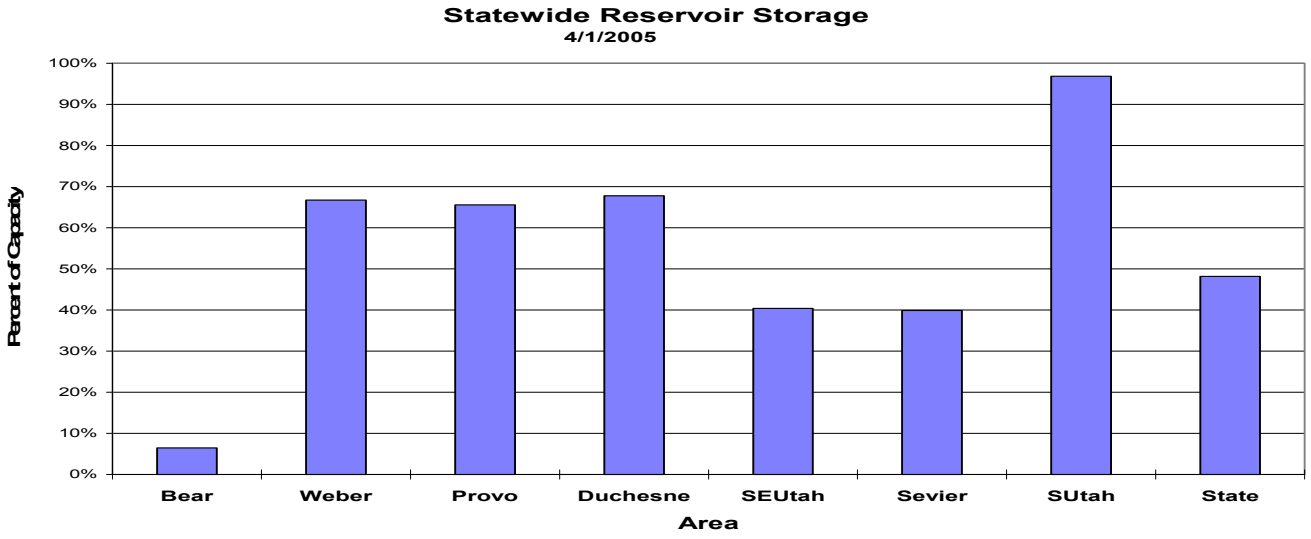
Storage in 41 of Utah's key irrigation reservoirs is at 48% of capacity. This is an increase of 3% from last year. Reservoirs across the state have been making steady gains in storage. Larger reservoirs such as Bear Lake and Utah Lake remain low. Most reservoirs should fill this year.

STREAMFLOW

Snowmelt streamflows are expected to be below average to much above average and even into record flows across the state of Utah this year. Forecast streamflows range from 57% on the Bear at Stewart dam to 351% on the Virgin. Most flows are forecast to be in the 100% to 160% range. Overall water supply conditions are improving.

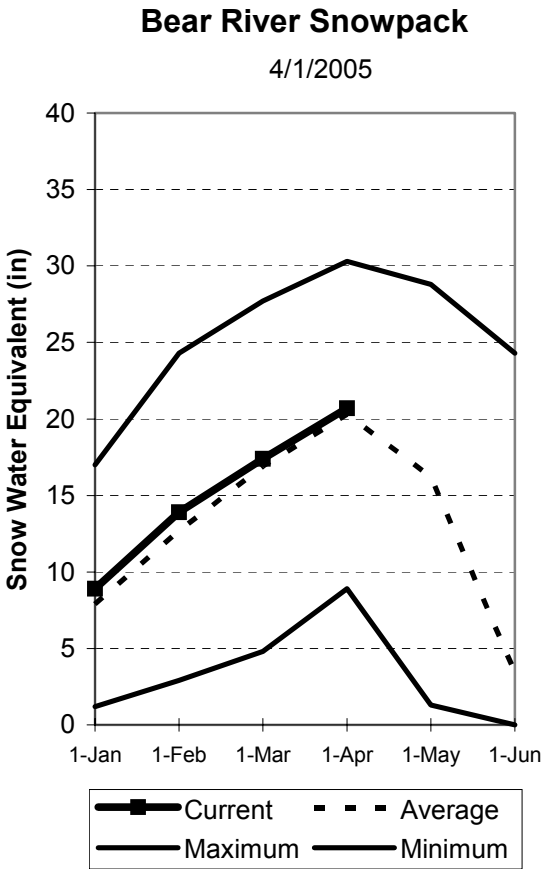


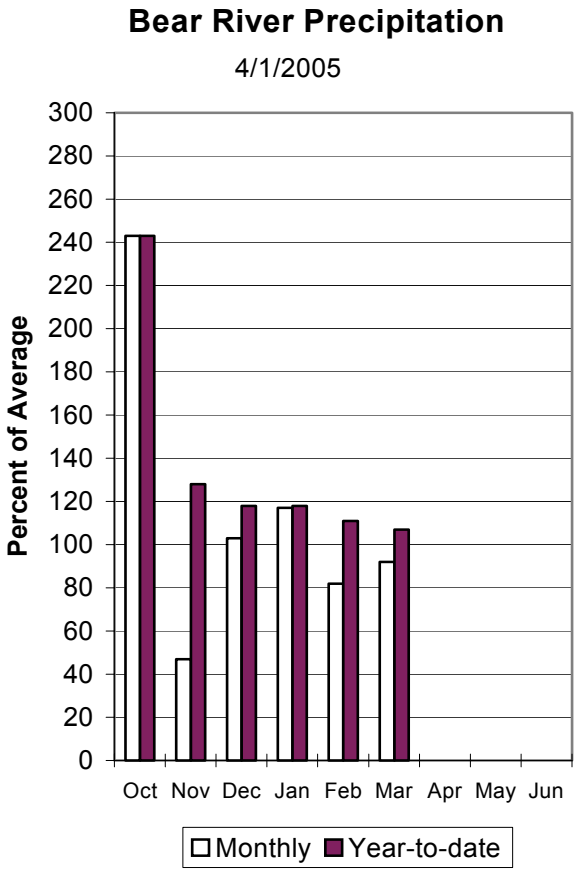


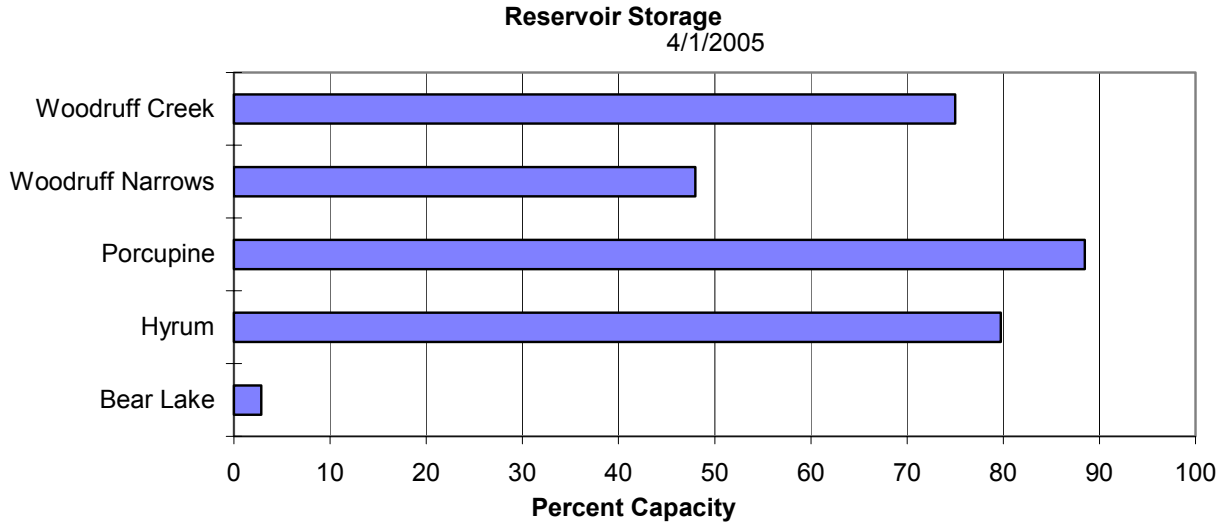


Bear River Basin
April 1, 2005

Snowpacks on the Bear River Basin are near average at 102% of normal, about 167% of last year and 1% less than last month. Specific sites range from 57% to 151% of normal. March precipitation was near average at 92%, which brings the seasonal accumulation (Oct-Mar) to 107% of average. Soil moisture levels in runoff producing areas are at 71% of saturation in the upper 2 feet of soil compared to 62% last year and up 3% from last month. Forecast streamflows range from much below to near average (57%-119%) volumes this spring. Reservoir storage is extremely low at 6% of capacity, 2% less than last year. The Surface Water Supply Index is at 4% for the Bear River, or 96% of years have had more total water available. Water supply conditions are much below normal due to low reservoir storage.







BEAR RIVER BASIN
Streamflow Forecasts - April 1, 2005

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Bear River nr UT-WY State Line	APR-JUL	107	121	130	115	139	153	113
Bear River ab Reservoir nr Woodruff	APR-JUL	120	145	162	119	179	204	136
Big Creek nr Randolph	APR-JUL	2.5	3.5	4.1	84	4.7	5.6	4.9
Smiths Fork nr Border	APR-JUL	72	83	91	88	99	110	103
Bear River at Stewart Dam	APR-JUL	87	113	133	57	154	189	234
Little Bear River at Paradise	APR-JUL	39	47	53	115	60	70	46
Logan River nr Logan combined flow	APR-JUL	95	110	120	95	131	148	126
Blacksmith Fork nr Hyrum	APR-JUL	37	47	55	115	63	77	48

BEAR RIVER BASIN
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
BEAR LAKE	1302.0	37.0	61.7	---
HYRUM	15.3	12.2	15.3	12.2
PORCUPINE	11.3	10.0	8.5	6.7
WOODRUFF NARROWS	57.3	27.5	19.0	32.7
WOODRUFF CREEK	4.0	3.0	3.0	---

BEAR RIVER BASIN
Watershed Snowpack Analysis - April 1, 2005

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
BEAR RIVER, UPPER (abv Ha	6	176	109
BEAR RIVER, LOWER (blw Ha	8	162	97
LOGAN RIVER	4	171	106
RAFT RIVER	1	87	86
BEAR RIVER BASIN	14	168	102

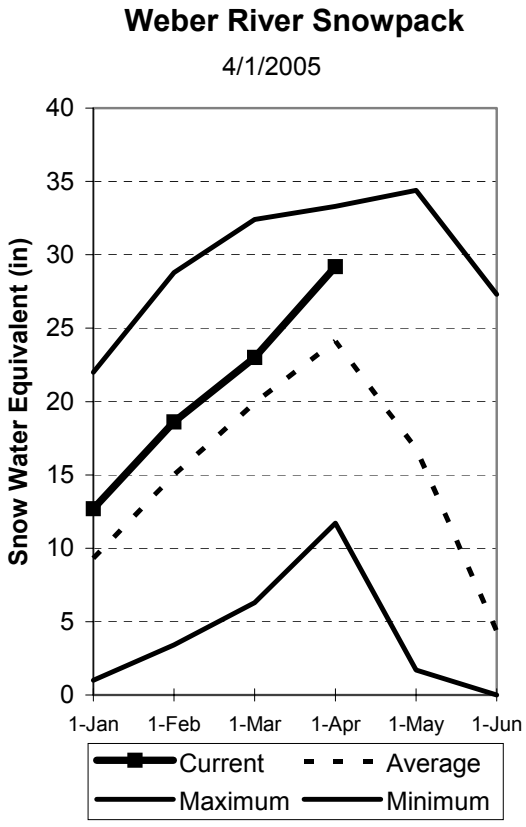
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

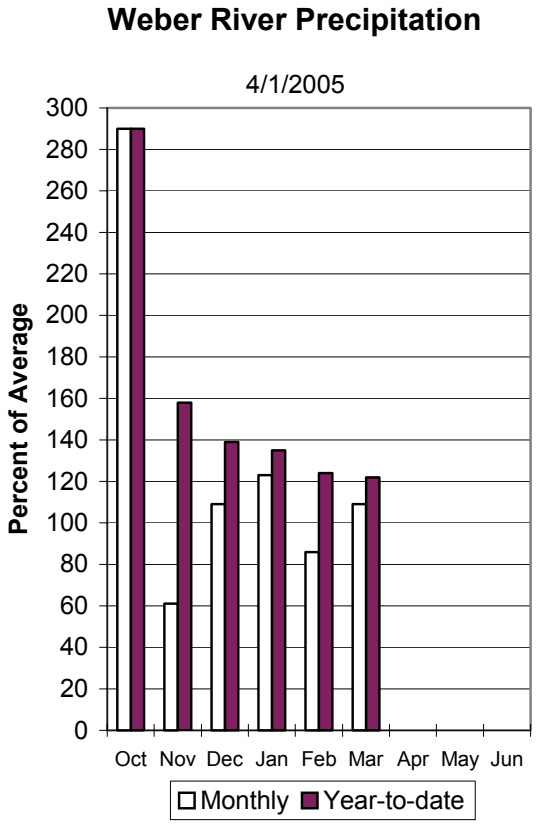
The average is computed for the 1971-2000 base period.

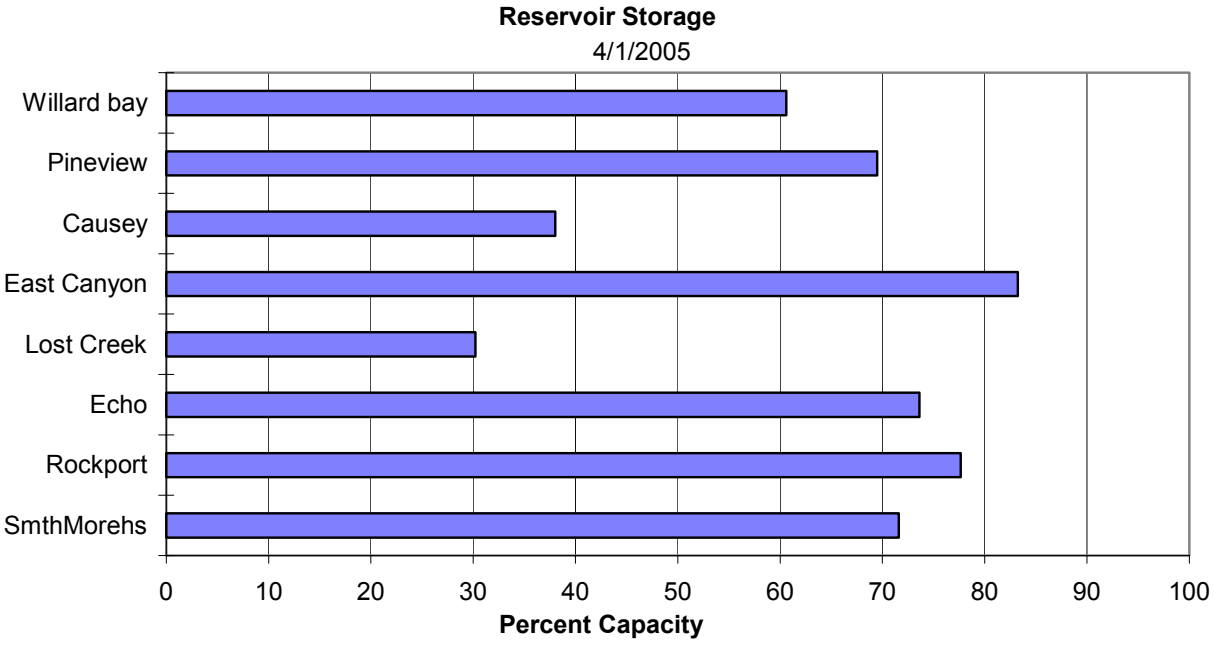
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

Weber and Ogden River Basins
April 1, 2005

Snowpack on the Weber and Ogden Watersheds is above normal at 121% of average, about 163% of last year and up 6% from last month. Individual sites range from 10% to 166% of average. March precipitation was near average at 92% bringing the seasonal accumulation (Oct-Mar) to 107% of average. Soil moisture levels in runoff producing areas are at 72% of saturation in the upper 2 feet of soil compared to 61% last year and up 3% from last month. Streamflow forecasts range from 105% to 154% of average. Reservoir storage is at 67% of capacity, about 18% more than last year. The Surface Water Supply Index is at 62% for the Weber River and at 59% for the Ogden River. Overall water supply conditions are near to above normal and improving.







WEBER & OGDEN WATERSHEDS in Utah
Streamflow Forecasts - April 1, 2005

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Smith & Morehouse Res inflow	APR-JUL	33	37	40	118	43	47	34
Weber River nr Oakley	APR-JUL	124	139	150	122	161	176	123
Rockport Reservoir inflow	APR-JUL	133	153	166	124	179	200	134
Weber River nr Coalville	APR-JUL	136	157	171	125	185	207	137
Chalk Creek at Coalville	APR-JUL	33	43	50	111	57	67	45
Echo Reservoir inflow	APR-JUL	161	190	210	117	230	260	179
Lost Creek Reservoir inflow	APR-JUL	11.0	15.0	18.0	102	21	27	17.6
East Canyon Reservoir inflow	APR-JUL	31	37	41	132	46	53	31
Weber River at Gateway	APR-JUL	360	415	455	128	495	550	355
SF Ogden River nr Huntsville	APR-JUL	53	63	70	109	77	87	64
Pineview Reservoir inflow	APR-JUL	107	127	140	105	153	173	133
Wheeler Creek nr Huntsville	APR-JUL	7.7	8.9	9.7	154	10.5	11.7	6.3

WEBER & OGDEN WATERSHEDS in Utah
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
CAUSEY	7.1	2.7	3.9	2.6
EAST CANYON	49.5	41.2	30.5	36.5
ECHO	73.9	54.4	48.0	51.5
LOST CREEK	22.5	6.8	5.4	14.1
PINEVIEW	110.1	76.5	60.6	61.7
ROCKPORT	60.9	47.3	37.1	35.1
WILLARD BAY	215.0	130.3	79.0	160.9

WEBER & OGDEN WATERSHEDS in Utah
Watershed Snowpack Analysis - April 1, 2005

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
OGDEN RIVER	4	146	115
WEBER RIVER	9	160	126
WEBER & OGDEN WATERSHEDS	13	155	122

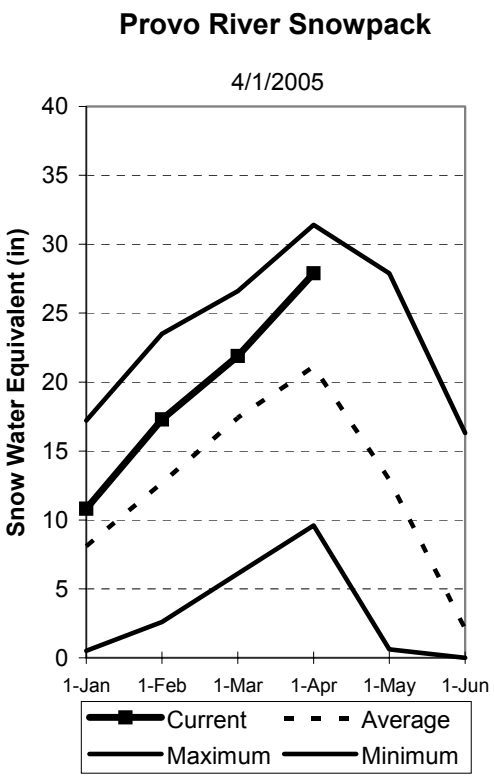
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

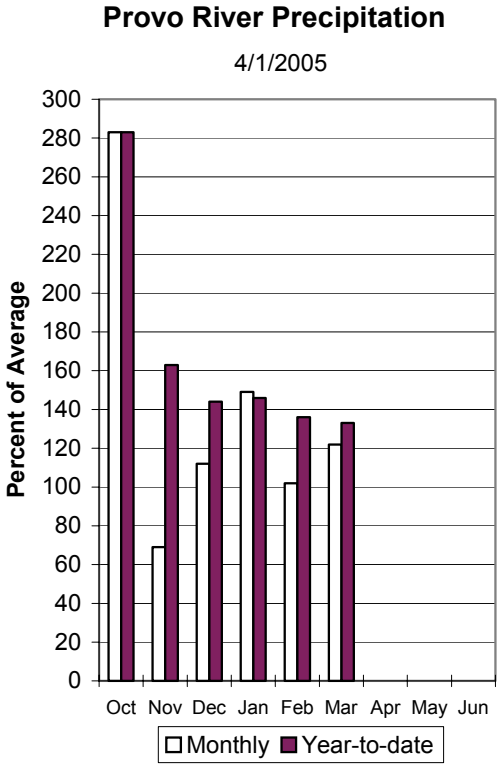
The average is computed for the 1971-2000 base period.

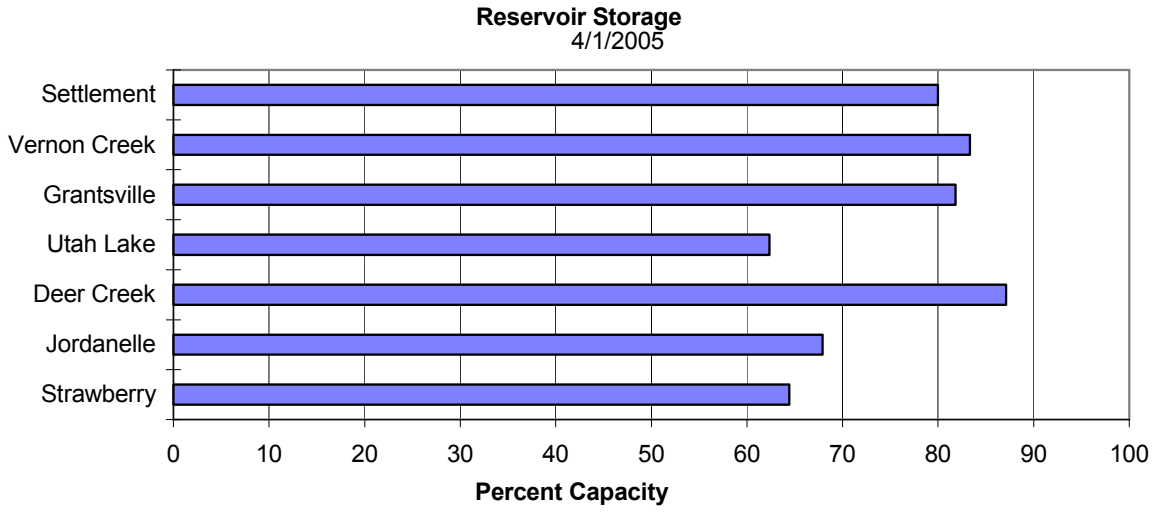
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

Utah Lake, Jordan River & Tooele Valley Basins
April 1, 2005

Snowpacks over these watersheds are above average at 133% of average, 177% of last year and up 7% from last month. Individual sites range from 76% to 169% of average. March precipitation was above average at 122%, bringing the seasonal accumulation (Oct-Mar) to 133% of average. Soil moisture levels in runoff producing areas are at 68% of saturation in the upper 2 feet of soil compared to 75% last year. Forecast streamflows range from 120% to 175% of average. Reservoir storage is at 66% of capacity, 1% more than last year. The Surface Water Supply Index is at 48%, or 52% of years would have more total water available. General water supply conditions are near normal and improving.







UTAH LAKE, JORDAN RIVER & TOOELE VALLEY
Streamflow Forecasts - April 1, 2005

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Spanish Fork River nr Castilla	APR-JUL	62	82	102	133	122	141	77
Provo River nr Woodland	APR-JUL	118	137	149	145	161	176	103
Provo River nr Hailstone	APR-JUL	124	146	160	147	174	196	109
Provo R blw Deer Creek Dam	APR-JUL	134	165	185	147	205	235	126
American Fk R nr American Fk	APR-JUL	49	53	56	175	59	63	32
Utah Lake inflow	APR-JUL	360	442	495	152	548	630	325
Little Cottonwood Ck nr SLC	APR-JUL	51	54	57	143	60	63	40
Big Cottonwood Ck nr SLC	APR-JUL	48	53	56	147	59	64	38
Mill Creek nr SLC	APR-JUL	5.9	7.4	8.5	121	9.6	11.1	7.0
Parley's Creek nr SLC	APR-JUL	12.9	16.9	20	120	23	27	16.7
Dell Fork nr SLC	APR-JUL	4.4	6.7	8.2	121	9.7	12.0	6.8
Emigration Creek nr SLC	APR-JUL	3.0	4.6	5.8	129	7.0	8.7	4.5
City Creek nr SLC	APR-JUL	8.6	10.6	12.0	138	13.4	15.4	8.7
Vernon Creek nr Vernon	APR-JUL	1.2	1.6	1.9	128	2.3	2.9	1.5
Settlement Creek nr Tooele	APR-JUL	1.7	2.2	2.6	132	3.0	3.8	2.0
South Willow Creek nr Grantsville	APR-JUL	3.9	4.5	5.0	155	5.5	6.1	3.2

UTAH LAKE, JORDAN RIVER & TOOELE VALLEY
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
DEER CREEK	149.7	130.4	62.6	113.0
GRANTSVILLE	3.3	2.7	1.7	2.7
SETTLEMENT CREEK	1.0	0.8	0.6	0.7
STRAWBERRY-ENLARGED	1105.9	712.4	777.4	648.8
UTAH LAKE	870.9	543.0	512.2	855.8
VERNON CREEK	0.6	0.5	0.7	---

UTAH LAKE, JORDAN RIVER & TOOELE VALLEY
Watershed Snowpack Analysis - April 1, 2005

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average
PROVO RIVER & UTAH LAKE	7	220	128
PROVO RIVER	4	236	139
JORDAN RIVER & GREAT SALT	6	153	130
TOOELE VALLEY WATERSHEDS	3	149	131
UTAH LAKE, JORDAN RIVER &	16	173	130

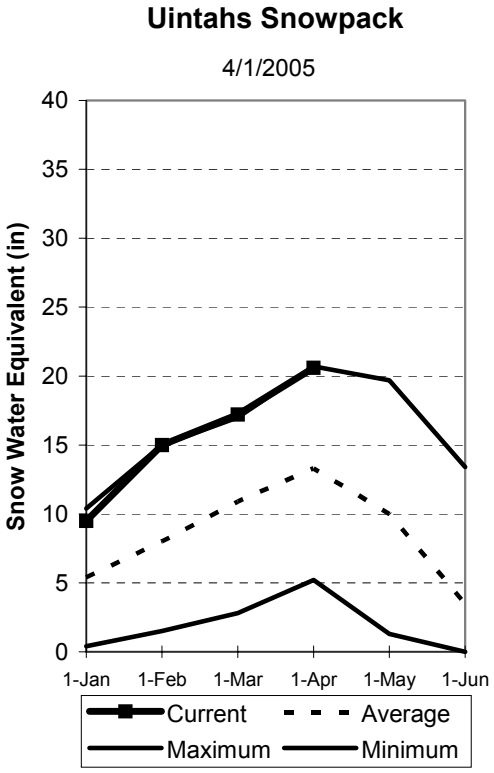
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

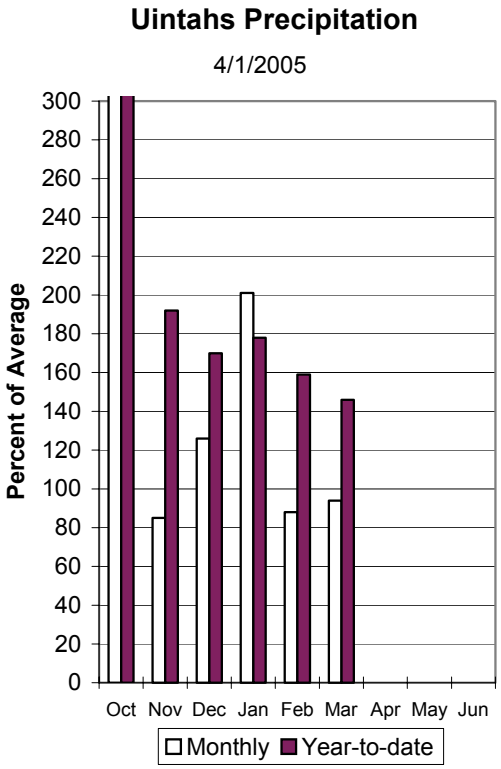
The average is computed for the 1971-2000 base period.

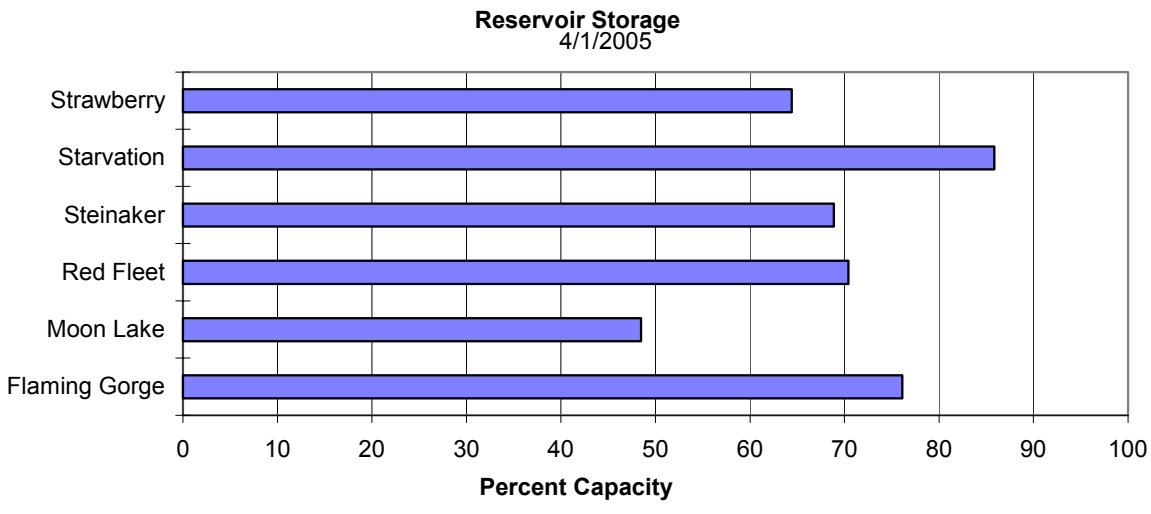
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

Uintah Basin and Dagget SCD's
April 1, 2005

Snowpacks across the Uintah Basin and North Slope areas are much above average and near record levels at 154%, which is 238% of last year and down 3% from last month. The North Slope ranges from 87% to 185% and the Uintah Basin ranges from 115% to 238% of average. Precipitation during March was near average at 94% bringing the seasonal accumulation (Oct-Mar) to 146% of average. Soil moisture values in runoff producing areas are at 64% of saturation in the upper 2 feet of soil compared to 57% last year, and up 6% from last month. Reservoir storage is at 68% of capacity, 4% less than last year. The Surface Water Supply Index for the western area is 74% and for the eastern area it is 85% indicating above normal conditions basin wide. Streamflow forecasts range between 120% and 209% of average. Springtime runoff conditions are above normal. Another month or more of snow accumulation in the high country is yet possible. Preparation for high flows should be considered.







UINTAH BASIN & DAGGET SCD'S
Streamflow Forecasts - April 1, 2005

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Blacks Fork nr Robertson	APR-JUL	82	96	105	111	114	128	95
EF of Smiths Fork nr Robertson	APR-JUL	25	29	32	103	35	40	31
Flaming Gorge Reservoir Inflow	APR-JUL	750	930	1050	88	1170	1350	1190
BIG BRUSH CK abv Red Fleet Resv	APR-JUL	26	30	33	157	36	40	21
Ashley Creek nr Vernal	APR-JUL	77	87	94	181	101	111	52
WF DUCHESNE RIVER nr Hanna	APR-JUL	20	26	30	125	34	42	24
DUCHESNE R nr Tabiona	APR-JUL	108	121	130	124	139	152	105
UPPER STILLWATER RESV inflow	APR-JUL	109	121	130	159	139	151	82
ROCK CK nr Mountain Home	APR-JUL	124	135	143	161	151	162	89
DUCHESNE R abv Knight Diversion	APR-JUL	235	265	285	152	305	335	188
STRAWBERRY RES nr Soldier Springs	APR-JUL	60	75	85	144	96	114	59
CURRANT CREEK RESV Inflow	APR-JUL	24	28	30	120	32	36	25
STARVATION RESERVOIR inflow	APR-JUL	122	145	160	132	175	198	121
Lake Fork River abv Moon Lake	APR-JUL	89	99	105	154	111	121	68
Yellowstone River nr Altonah	APR-JUL	76	87	95	153	103	114	62
DUCHESNE R at Myton	APR-JUL	385	445	485	187	525	585	260
Whiterocks River nr Whiterocks	APR-JUL	91	102	110	196	118	129	56
DUCHESNE R nr Randlett	APR-JUL	445	585	680	209	775	920	325

UINTAH BASIN & DAGGET SCD'S
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
FLAMING GORGE	3749.0	2853.0	2631.0	2920.0
MOON LAKE	49.5	24.0	17.8	30.8
RED FLEET	25.7	18.1	14.7	18.8
STEINAKER	33.4	23.0	14.3	24.2
STARVATION	165.3	141.9	154.7	138.6
STRAWBERRY-ENLARGED	1105.9	712.4	777.4	648.8

UINTAH BASIN & DAGGET SCD'S
Watershed Snowpack Analysis - April 1, 2005

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
UPPER GREEN RIVER in UTAH	6	237	131
ASHLEY CREEK	2	311	181
BLACK'S FORK RIVER	2	158	99
SHEEP CREEK	1	330	116
DUCHESNE RIVER	11	239	164
LAKE FORK-YELLOWSTONE CRE	4	191	156
STRAWBERRY RIVER	4	273	139
UINTAH-WHITEROCKS RIVERS	2	282	226
UINTAH BASIN & DAGGET SCD	17	239	155

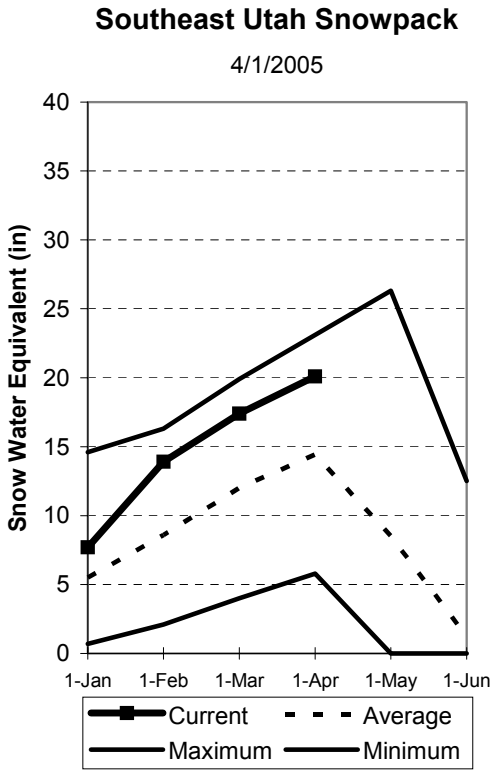
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

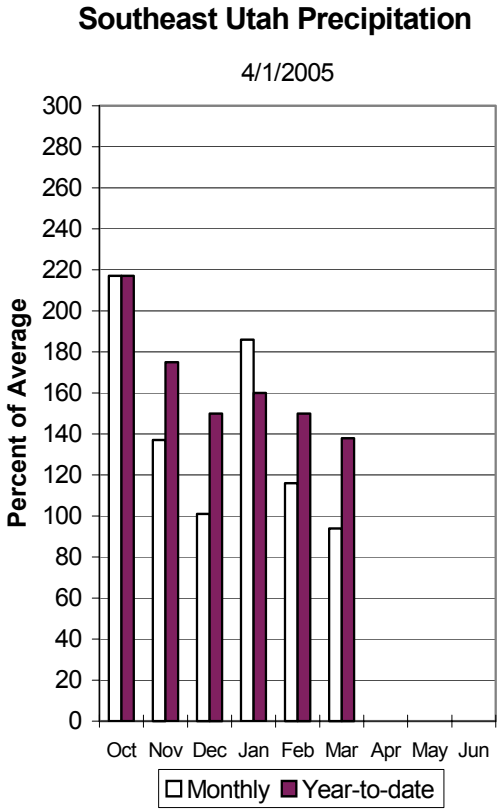
The average is computed for the 1971-2000 base period.

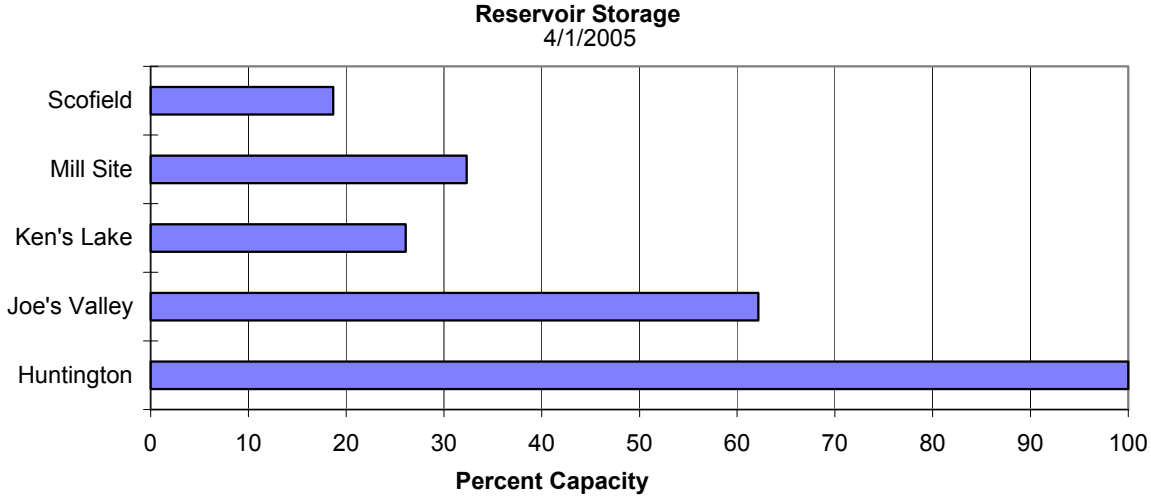
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

Carbon, Emery, Wayne, Grand and San Juan Co.
April 1, 2005

Snowpacks in this region are much above normal at 139% of average, about 250% of last year and down 6% from last month. Individual sites range from 89% to 263% of average. Precipitation during March was near average at 94%, bringing the seasonal accumulation (Oct-Mar) to 138% of normal. Soil moisture estimates in runoff producing areas are at 70% of saturation in the upper 2 feet of soil compared to 67% last year and up 10% from last month. Forecast streamflows range from 92% to 343% of average. Reservoir storage is at 40% of capacity, down 3% from last year. Surface Water Supply Indices for the area are: Price 29%, (below normal) San Rafael area 56% (near average) and Moab 58% (near average). General runoff and water supply conditions are below normal on the Price and much above normal in the southeast.







CARBON, EMERY, WAYNE, GRAND, & SAN JUAN Co.
Streamflow Forecasts - April 1, 2005

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Gooseberry Creek nr Scofield	APR-JUL	9.7	11.4	12.5	105	13.6	15.3	11.9
Scofield Reservoir inflow	APR-JUL	38	43	46	100	49	54	46
White River blw Tabbyune Creek	APR-JUL	13.2	17.1	20	115	23	28	17.4
Green River at Green River, UT	APR-JUL	2090	2700	3120	98	3540	4150	3170
Electric Lake inflow	APR-JUL	10.7	13.1	15.0	96	17.1	20	15.7
HUNTINGTON CK nr Huntington	APR-JUL	37	43	46	92	50	55	50
JOE'S VALLEY RESV Inflow	APR-JUL	43	53	60	103	67	77	58
Ferron Creek nr Ferron	APR-JUL	32	37	41	105	45	51	39
Colorado River nr Cisco	APR-JUL	3210	3980	4500	97	5020	5790	4650
Mill Creek at Sheley Tunnel nr Moab	APR-JUL	4.2	5.6	6.7	134	7.9	10.1	5.0
Seven Mile Creek nr Fish Lake	APR-JUL	4.3	6.5	8.0	114	9.5	11.7	7.0
Muddy Creek nr Emery	APR-JUL	15.5	19.4	22	111	25	29	19.9
North Ck ab R.S. nr Monticello	MAR-JUL	1.8	2.6	3.3	340	3.9	5.8	1.0
South Ck ab Lloyd's Res nr Monticell	MAR-JUL	3.1	4.0	4.7	343	5.5	6.7	1.4
Recapture Ck bl Johnson Ck nr Blandi	MAR-JUL	14.3	15.9	17.0	337	18.2	19.9	5.0
San Juan River nr Bluff	APR-JUL	1550	1850	2070	168	2250	2520	1230

CARBON, EMERY, WAYNE, GRAND, & SAN JUAN Co.
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
HUNTINGTON NORTH	4.2	4.2	4.0	3.9
JOE'S VALLEY	61.6	38.3	35.1	41.4
KEN'S LAKE	2.3	0.6	0.9	1.4
MILL SITE	16.7	5.4	6.1	86.2
SCOFIELD	65.8	12.3	17.3	34.7

CARBON, EMERY, WAYNE, GRAND, & SAN JUAN Co.
Watershed Snowpack Analysis - April 1, 2005

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
PRICE RIVER	3	250	119
SAN RAFAEL RIVER	3	164	106
MUDDY CREEK	1	218	133
FREMONT RIVER	3	248	168
LASAL MOUNTAINS	1	434	141
BLUE MOUNTAINS	1	465	263
WILLOW CREEK	1	490	177
CARBON, EMERY, WAYNE, GRA	13	250	140

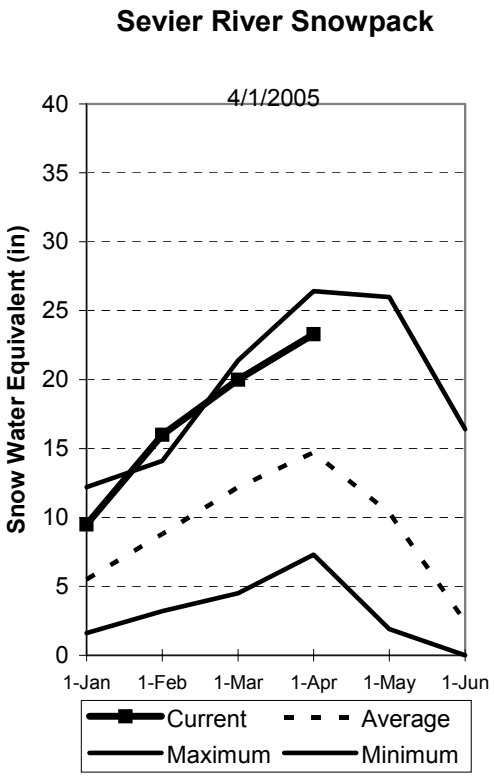
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

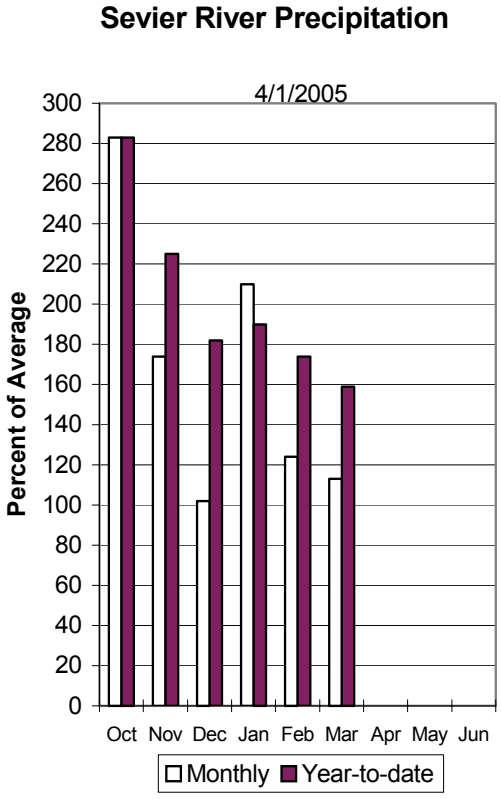
The average is computed for the 1971-2000 base period.

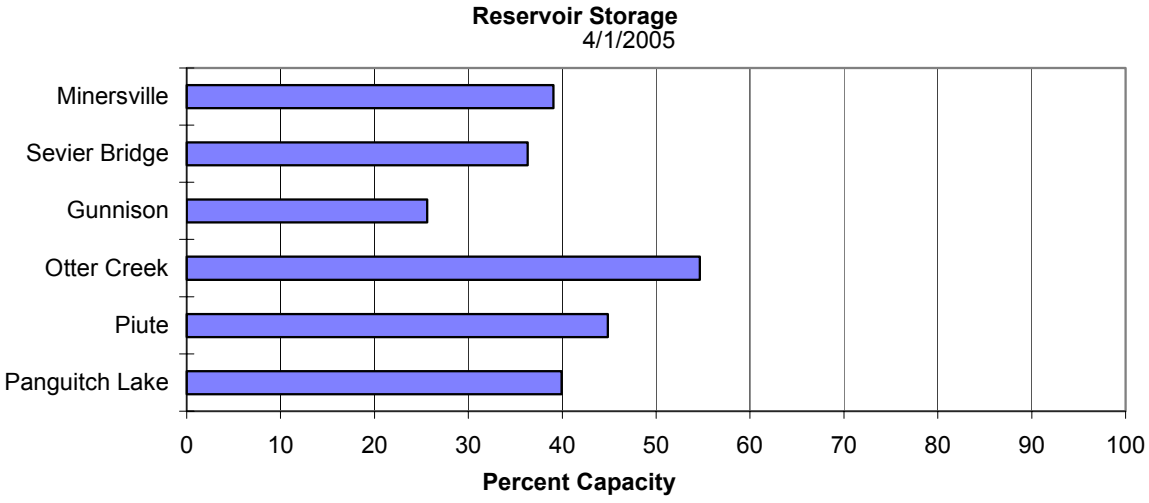
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

Sevier and Beaver River Basins
April 1, 2005

Snowpacks on the Sevier River Basin are much above normal at 158% of average, about 247% of last year and down 6% from last month. The lower Sevier area is near average at 96%. Individual sites range from 75% to 376% of average. Precipitation during March was above average at 113% of normal, bringing the seasonal accumulation (Oct-Mar) to 159% of average. Soil moisture estimates in runoff producing areas are at 74% of saturation (Sevier) in the upper 2 feet of soil compared to 53% last year an up 6% from last month. Streamflow forecasts range from 99% to 300% of average. Reservoir storage is at 40% of capacity, 9% more than last year. Surface Water Supply Indices are: Upper Sevier 94%, Lower Sevier 91% and Beaver 85%. Water supply conditions are much above average due to high snowpack and soil moisture. There could be a month or more of snow accumulation in the high country. On the upper Sevier, preparation for high flows is appropriate.







SEVIER & BEAVER RIVER BASINS
Streamflow Forecasts - April 1, 2005

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Sevier River at Hatch	APR-JUL	147	159	165	300	171	183	55
Sevier River nr Kingston	APR-JUL	197	219	225	253	231	255	89
EF Sevier R nr Kingston	APR-JUL	67	79	87	229	95	107	38
Sevier R blw Piute Dam	APR-JUL	250	284	305	242	326	360	126
Clear Creek nr Sevier	APR-JUL	36	43	46	209	49	56	22
Salina Creek at Salina	APR-JUL	13.8	25	32	162	39	50	19.7
Manti Creek nr Manti	APR-JUL	12.1	15.3	17.8	99	20.3	24.5	18.0
Sevier R nr Gunnison	APR-JUL	370	501	575	205	649	775	280
Chicken Creek nr Levan	APR-JUL	3.3	4.5	5.5	122	6.6	8.5	4.5
Oak Creek nr Oak City	APR-JUL	1.4	1.7	2.0	121	2.3	2.8	1.7
Beaver River nr Beaver	APR-JUL	40	46	50	185	55	62	27
Minersville Reservoir inflow	APR-JUL	23	32	38	229	45	57	16.6

SEVIER & BEAVER RIVER BASINS
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
GUNNISON	20.3	5.2	3.8	16.3
MINERSVILLE (RkyFd)	23.3	9.1	7.9	17.9
OTTER CREEK	52.5	28.7	26.1	43.5
PIUTE	71.8	32.3	14.9	58.5
SEVIER BRIDGE	236.0	85.7	74.9	189.7
PANGUITCH LAKE	22.3	8.9	6.0	152.9

SEVIER & BEAVER RIVER BASINS
Watershed Snowpack Analysis - April 1, 2005

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average
UPPER SEVIER RIVER (south	8	328	225
EAST FORK SEVIER RIVER	3	289	214
SOUTH FORK SEVIER RIVER	5	359	231
LOWER SEVIER RIVER (inclu	6	173	96
BEAVER RIVER	2	182	150
SEVIER & BEAVER RIVER BAS	16	249	159

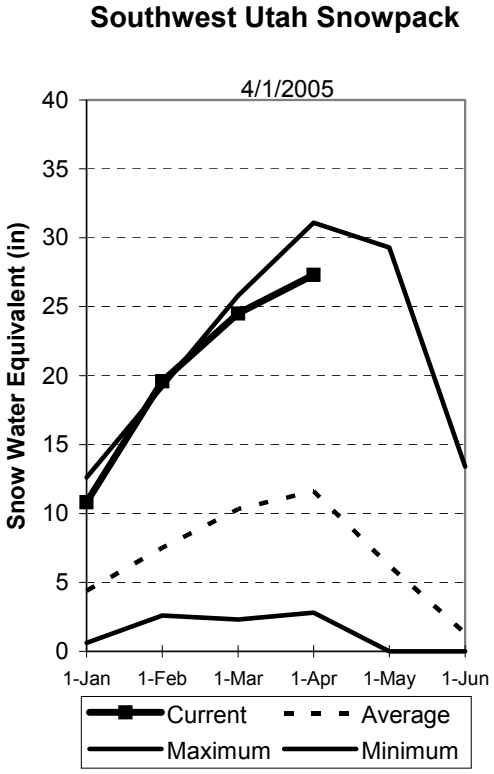
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

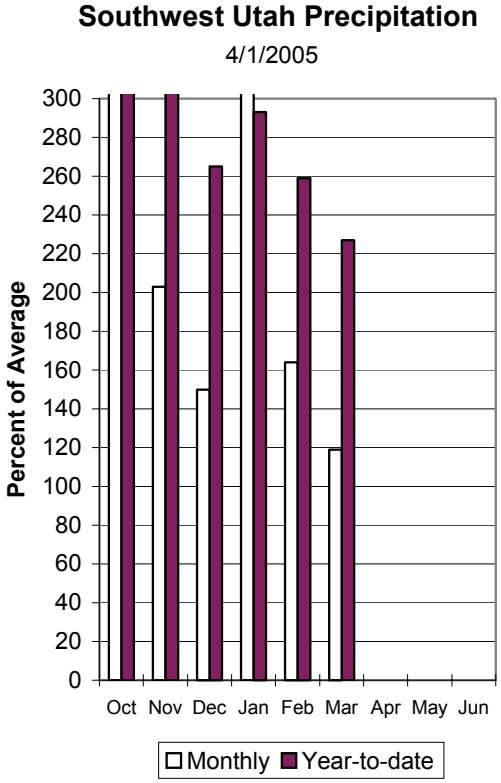
The average is computed for the 1971-2000 base period.

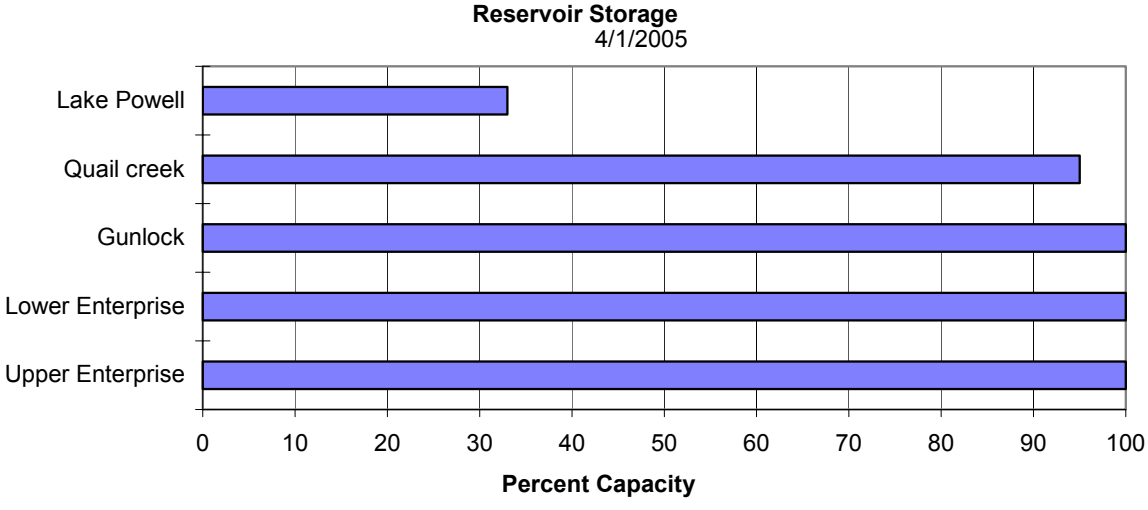
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

E. Garfield, Kane, Washington, & Iron co.
April 1, 2005

Snowpacks in this region are much above normal at 234% of average, about 419% of last year and down 3% from last month. Individual sites range from 0% to 372% of average. Precipitation was above normal during March at 119% of average, bringing the seasonal accumulation (Oct-Mar) to 227% of normal. Soil moisture estimates in runoff producing areas are at 72% of saturation in the upper 2 feet of soil compared to 55% last year and down 4% from last month. Forecast streamflows range from 305% to 351% of average. Reservoir storage is at 97% of capacity, 41% more than last year. The Surface Water Supply Index is at 95%, indicating much above normal water availability. March has heightened concerns over the potential for high flows this spring, some of which have already occurred. More snow accumulation in the high country is yet possible.







E. GARFIELD, KANE, WASHINGTON, & IRON Co.
Streamflow Forecasts - April 1, 2005

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Lake Powell inflow	APR-JUL	5990	7480	8500	107	9520	11010	7930
Virgin River nr Virgin	APR-JUL	150	179	195	305	220	260	64
Virgin River nr Hurricane	APR-JUL	170	205	230	333	260	305	69
Santa Clara River nr Pine Valley	APR-JUL	9.0	15.1	19.0	346	24	29	5.5
Coal Creek nr Cedar City	APR-JUL	46	51	54	280	57	62	19.3

E. GARFIELD, KANE, WASHINGTON, & IRON Co.
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
GUNLOCK	10.4	10.4	6.2	4.5
LAKE POWELL	24322.0	8023.0	10186.0	---
QUAIL CREEK	40.0	38.0	27.0	31.0
UPPER ENTERPRISE	10.0	10.0	1.4	---
LOWER ENTERPRISE	2.6	2.6	0.7	137.1

E. GARFIELD, KANE, WASHINGTON, & IRON Co.
Watershed Snowpack Analysis - April 1, 2005

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
VIRGIN RIVER	5	441	251
PAROWAN	2	299	244
ENTERPRISE TO NEW HARMONY	2	0	194
COAL CREEK	2	355	242
ESCALANTE RIVER	2	261	192
E. GARFIELD, KANE, WASHIN	9	398	234

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

UTAH SURFACE WATER SUPPLY INDEX

Snow Surveys Basin or Region April, 2005	NRCS SWSI/%	USDA Percentile	Years with Similar SWSI
Bear River	-3.8	4%	04,03,93
Ogden River	0.7	59%	96,95,79,73
Weber River	1.0	62%	72,97,69,71
Provo	-0.2	48%	78,88,79,00
West Uintah Basin	2.0	74%	96,86,01,00
East Uintah Basin	2.9	85%	01,95,98,86
Price River	-1.7	29%	03,89,98,62
San Rafael	0.5	56%	00,74,82,98
Moab	0.6	58%	94,97,92,98
Upper Sevier River	3.7	94%	80,73,95,83
Lower Sevier River	3.5	91%	86,95,85,83
Beaver River	2.9	85%	73,86,69,79
Virgin River	3.8	95%	88,98,95,93

Snow Surveys

245 N Jimmy Doolittle Rd
Salt Lake City, UT
(801) 524-5213

SWSI Scale: -4 to 4
Percentile: 0 - 100%

What is a Surface Water Supply Index?

The Surface Water Supply Index (SWSI) is a predictive indicator of total surface water availability within a watershed for the spring and summer water use seasons. The index is calculated by combining pre-runoff reservoir storage (carryover) with forecasts of spring and summer streamflow which are based on current snowpack and other hydrologic variables. SWSI values are scaled from +4.1 (abundant supply) to -4.1 (extremely dry) with a value of zero (0) indicating media water supply as compared to historical analysis. SWSI's are calculated in this fashion to be consistent with other hydroclimatic indicators such as the Palmer Drought Index and the Precipitation index.

Utah Snow Surveys has also chosen to display the SWSI as a PERCENT CHANCE OF NON-EXCEEDANCE. While this is a very cumbersome name, it has the simplest application. It can be best thought of as a simple scale of 1 to 99 with 1 being the drought of record (driest possible conditions) and 99 being the flood of record (wettest possible conditions) and a value of 50 representing average conditions. This rating scale is a percentile rating as well, for example a SWSI of 75% means that this years water supply is greater than 75% of all historical events and that only 25% of the time has it been exceeded. Conversely a SWSI of 10% means that 90% of historical events have been greater than this one and that only 10% have had less total water supply. This scale is far more intuitive for most people and is totally comparable between basins: a SWSI of 50% means the same relative ranking on watershed A as it does on watershed B, which may not be strictly true of the +4 to -4 scale.

For more information on the SWSI go to: www.ut.nrcs.usda.gov/snow/ on the water supply page. The entire period of historical record for reservoir storage and streamflow is available.

S N O W C O U R S E D A T A

APRIL 2005

SNOW COURSE	ELEV.	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 71-00
AGUA CANYON SNOTEL	8900	4/01	65	22.4	2.2	7.1
ALTA CENTRAL	8800	4/01	145	48.6	34.0	37.3
BEAVER DAMS SNOTEL	8000	4/01	27	7.9	0.3	10.5
BEAVER DIVIDE SNOTEL	8280	4/01	39	12.7	0.4	10.6
BEN LOMOND PK SNOTEL	8000	4/01	133	52.7	33.2	41.5
BEN LOMOND TR SNOTEL	6000	4/01	67	24.2	18.9	19.5
BEVAN'S CABIN	6450	3/26	36	11.1	12.7	11.6
BIG FLAT SNOTEL	10290	4/01	99	27.9	14.5	19.0
BIRCH CROSSING	8100	3/29	25	7.2	1.1	5.4
BLACK FLAT-U.M. CK S	9400	4/01	43	12.1	5.6	10.3
BLACK'S FORK GS-EF	9340	3/26	38	9.8	7.0	9.7
BLACK'S FORK JUNCTN	8930	3/26	33	8.3	6.4	9.3
BOX CREEK SNOTEL	9800	4/01	64	20.5	11.0	13.7
BRIAN HEAD	10000	3/29	92	32.6	15.9	21.1
BRIGHTON SNOTEL	8750	4/01	108	26.3	15.4	25.4
BRIGHTON CABIN	8700	4/01	112	39.1	20.3	27.8
BROWN DUCK SNOTEL	10600	4/01	98	33.9	16.7	18.2
BRYCE CANYON	8000	3/30	35	14.3	0.0	3.8
BUCK FLAT SNOTEL	9800	4/01	66	19.9	11.2	18.7
BUCK PASTURE	9700	3/26	67	16.2	10.4	16.9
BUCKBOARD FLAT	9000	3/30	79	26.5	9.0	12.4
BUG LAKE SNOTEL	7950	4/01	64	21.1	13.5	21.2
BURT'S-MILLER RANCH	7900	3/26	18	5.7	0.0	4.9
CAMP JACKSON SNOTEL	8600	4/01	78	35.8	7.7	13.6
CASCADE MOUNTAIN SNO	7770	4/01	83	27.0	13.7	-
CASTLE VALLEY SNOTEL	9580	4/01	86	31.1	10.1	14.6
CHALK CK #1 SNOTEL	9100	4/01	86	27.5	16.1	24.9
CHALK CK #2 SNOTEL	8200	4/01	59	17.4	11.3	16.2
CHALK CREEK #3	7500	3/26	22	7.0	1.0	6.9
CHEPETA SNOTEL	10300	4/01	87	33.8	10.3	14.2
CLAYTON SPRINGS SNTL	10000	4/01	72	24.3	9.2	-
CLEAR CK RIDG #1 SNT	9200	4/01	68	25.6	11.5	19.7
CLEAR CK RIDG #2 SNT	8000	4/01	50	17.6	9.5	14.7
CORRAL	8200	3/28	51	18.3	4.2	9.0
CURRANT CREEK SNOTEL	8000	4/01	36	12.9	3.3	10.2
DANIELS-STRAWBERRY S	8000	4/01	56	22.9	9.8	16.7
DILL'S CAMP SNOTEL	9200	4/01	52	19.8	9.1	14.9
DONKEY RESERVOIR SNO	9800	4/01	52	12.4	5.0	8.7
DRY BREAD POND SNTL	8350	4/01	63	23.6	16.4	22.6
DRY FORK SNOTEL	7160	4/01	50	13.8	14.4	18.2
EAST WILLOW CREEK SN	8250	4/01	49	14.7	3.0	8.3
FARMINGTON U. SNOTEL	8000	4/01	131	53.1	40.9	34.3
FARMINGTON LOWER SC	6950	3/31	97	32.7	29.8	25.6
FARMINGTON L. SNOTEL	6780	4/01	74	26.3	22.2	-
FARNSWORTH LK SNOTEL	9600	4/01	81	22.2	17.3	19.6
FISH LAKE	8700	3/27	34	10.9	5.3	8.8
FIVE POINTS LAKE SNO	10920	4/01	81	27.7	15.6	17.7
G.B.R.C. HEADQUARTER	8700	3/27	49	15.3	11.3	16.6
G.B.R.C. MEADOWS	10000	3/27	79	27.2	20.5	24.0
GARDEN CITY SUMMIT	7600	3/31	60	20.2	15.7	16.2
GARDNER PEAK SNOTEL	8350	4/01	72	25.7	-	-
GEORGE CREEK	8840	3/27	85	29.9	26.8	22.3
GOOSEBERRY R.S.	8400	3/27	40	11.5	6.8	12.0
GOOSEBERRY R.S. SNTL	7900	4/01	26	9.2	0.0	8.7
GUTZ PEAK SNOTEL	6820	4/01	44	20.4	-	-
HARDSCRABBLE SNOTEL	7250	4/01	67	24.0	13.2	20.2
HARRIS FLAT SNOTEL	7700	4/01	-	22.9	0.2	6.7
HAYDEN FORK SNOTEL	9100	4/01	57	19.7	4.9	16.6
HENRY'S FORK	10000	3/26	53	12.2	5.2	14.0
HEWINTA SNOTEL	9500	4/01	36	12.3	5.8	12.1
HICKERSON PARK SNTL	9100	4/01	29	8.9	2.7	7.7
HIDDEN SPRINGS	5500	4/01	11	2.3	0.3	2.4
HOBBLE CREEK SUMMIT	7420	3/28	39	14.3	10.5	13.9
HOLE-IN-ROCK SNOTEL	9150	4/01	29	8.0	2.7	7.2
HORSE RIDGE SNOTEL	8260	4/01	68	23.8	14.3	23.9
HUNTINGTON-HORSESHOE	9800	3/27	75	26.2	17.5	24.0
INDIAN CANYON SNOTEL	9100	4/01	60	21.7	5.6	11.9
JOHNSON VALLEY	8850	3/27	33	11.1	2.6	7.1
JONES CORRAL G.S.	9720	3/27	57	17.2	9.1	12.5
KILFOIL CREEK	7300	3/31	57	16.3	14.9	14.4
KILLYON CANYON	6300	3/31	16	3.3	1.3	5.6

SNOW COURSE	ELEV.	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 71-00
KIMBERLY MINE SNOTEL	9300	4/01	63	21.3	10.0	16.7
KING'S CABIN SNOTEL	8730	4/01	50	20.1	5.7	11.3
KLONDIKE NARROWS	7400	3/31	60	17.4	12.5	19.2
KOLOB SNOTEL	9250	4/01	139	53.6	14.4	23.9
LAKEFORK #1 SNOTEL	10100	4/01	75	22.9	10.6	12.7
LAKEFORK BASIN SNTL	10900	4/01	82	23.8	13.9	20.7
LAKEFORK MOUNTAIN #3	8400	3/26	44	13.1	2.4	6.0
LAMBS CANYON	7400	3/31	59	17.4	11.7	16.1
LASAL MOUNTAIN LOWER	8800	4/04	39	13.4	4.0	9.8
LASAL MOUNTAIN SNTL	9850	4/01	64	19.1	4.4	13.5
LIGHTNING RIDGE SNTL	8220	4/01	62	20.1	-	-
LILY LAKE SNOTEL	9050	4/01	52	17.0	7.0	13.5
LITTLE BEAR LOWER	6000	3/31	41	14.3	11.1	9.5
LITTLE BEAR SNOTEL	6550	4/01	37	14.2	2.8	12.3
LITTLE GRASSY SNOTEL	6100	4/01	0	.0	0.0	.7
LONG FLAT SNOTEL	8000	4/01	-	15.9	0.0	7.5
LONG VALLEY JCT. SNT	7500	4/01	27	11.9	0.0	3.2
LOOKOUT PEAK SNOTEL	8200	4/01	110	36.6	28.2	24.3
LOST CREEK RESERVOIR	6130	3/31	1	0.2	0.0	2.0
LOUIS MEADOW SNOTEL	6700	4/01	59	20.5	12.5	-
MAMMOTH-COTTONWD SNT	8800	4/01	58	21.4	9.5	21.0
MERCHANT VALLEY SNTL	8750	4/01	72	20.6	12.1	13.4
MIDDLE CANYON	7000	3/26	39	12.3	13.8	14.0
MIDWAY VALLEY SNOTEL	9800	4/01	161	66.3	22.5	25.3
MILL CREEK	6950	3/31	73	20.6	19.5	20.6
MILL-D NORTH SNOTEL	8960	4/01	97	35.9	18.0	25.5
MILL-D SOUTH FORK	7400	4/01	65	20.1	13.5	19.1
MINING FORK SNOTEL	8000	4/01	75	28.2	19.7	21.0
MONTE CRISTO SNOTEL	8960	4/01	87	30.5	21.3	30.1
MOSBY MTN. SNOTEL	9500	4/01	78	25.7	10.8	12.1
MT.BALDY R.S.	9500	3/27	79	24.8	19.3	24.1
MUD CREEK #2	8600	3/27	48	14.4	11.1	13.5
OAK CREEK	7760	3/27	64	16.9	10.3	12.0
PANGUITCH LAKE R.S.	8200	3/30	44	13.5	2.9	4.0
PARLEY'S CANYON SNTL	7500	4/01	55	17.3	7.1	17.1
PARRISH CREEK SNOTEL	7740	4/01	92	28.9	27.7	-
PAYSON R.S. SNOTEL	8050	4/01	67	19.5	11.8	20.6
PICKLE KEG SNOTEL	9600	4/01	56	13.8	11.7	17.9
PINE CREEK SNOTEL	8800	4/01	-	24.2	18.1	24.8
RED PINE RIDGE SNTL	9200	4/01	63	17.5	10.2	17.3
REDDEN MINE LOWER	8500	3/26	70	22.3	11.0	17.8
REES'S FLAT	7300	3/27	40	11.6	9.9	12.6
ROCK CREEK SNOTEL	7900	4/01	-	17.2	3.6	8.1
ROCKY BN-SETTLEMT SN	8900	4/01	88	33.7	22.8	26.5
SEELEY CREEK SNOTEL	10000	4/01	60	17.0	11.7	15.3
SMITH MOREHOUSE SNTL	7600	4/01	51	17.8	6.4	14.0
SNOWBIRD SNOTEL	9700	4/01	173	60.3	42.5	35.8
SPIRIT LAKE	10300	3/26	71	20.6	10.5	13.8
SQUAW SPRINGS	9300	3/27	36	11.7	4.6	7.1
STEEL CREEK PARK SNO	10100	4/01	60	15.5	11.8	15.9
STILLWATER CAMP	8550	3/26	40	11.5	4.6	10.5
STRAWBERRY DIVIDE SN	8400	4/01	56	22.2	10.5	18.7
SUSC RANCH	8200	3/29	45	18.3	2.1	7.0
TALL POLES	8800	3/29	63	19.3	13.0	14.7
TEMPLE FORK SNOTEL	7410	4/01	60	19.0	10.7	-
THAYNES CANYON SNTL	9200	4/01	118	41.4	17.5	24.9
THISTLE FLAT	8500	3/27	54	15.2	12.3	16.9
TIMBERLINE	9100	3/28	73	26.5	9.6	14.7
TIMPANOGOS DIVIDE SN	8140	4/01	106	40.6	16.7	24.0
TONY GROVE LK SNOTEL	8400	4/01	105	44.0	27.8	37.7
TONY GROVE R.S.	6250	3/31	37	13.3	5.9	11.1
TRIAL LAKE	9960	3/26	89	29.4	18.6	24.2
TRIAL LAKE SNOTEL	9960	4/01	83	30.0	15.8	25.3
TROUT CREEK SNOTEL	9400	4/01	63	20.7	7.4	11.2
UPPER JOES VALLEY	8900	3/27	31	10.1	5.7	9.9
VERNON CREEK SNOTEL	7500	4/01	56	15.8	9.5	11.7
VIPONT	7670	3/27	46	16.4	16.6	15.4
WEBSTER FLAT SNOTEL	9200	4/01	81	33.4	5.6	15.9
WHITE RIVER #1 SNTL	8550	4/01	46	17.7	4.9	13.5
WHITE RIVER #3	7400	3/28	13	5.4	.0	6.1
WIDTSOE #3 SNOTEL	9500	4/01	80	28.9	10.9	12.8
WRIGLEY CREEK	9000	3/27	48	13.0	8.5	11.3
YANKEE RESERVOIR	8700	3/29	48	15.2	6.1	10.0

Issued by

Bruce I. Knight
Chief
Natural Resources Conservation Service
U.S. Department of Agriculture

Released by

Sylvia Gillen
State Conservationist
Natural Resources Conservation Service
Salt Lake City, Utah

Prepared by
Snow Survey Staff
Randall Julander, Supervisor
Ray Wilson, Hydrologist
Timothy Bardsley, Hydrologist
Mike Bricco, Hydrologist
Bob Nault, Electronics Technician

YOU MAY OBTAIN THIS PRODUCT AS WELL AS CURENT SNOW, PRECIPITATION, TEMPERATURE AND SOIL MOISTURE, RESERVOIR, SURFACE WATER SUPPLY INDEX, AND OTHER DATA BY VISITING OUR WEB SITE @:
http://www.ut.nrcs.usda.gov/snow/

Snow Survey, NRCS, USDA
245 North Jimmy Doolittle Road
Salt Lake City, UT 84116
(801) 524-5213

Utah Water Supply Outlook Report

Natural Resources Conservation Service
Salt Lake City, UT